ARTICULATA 2002 17(1): 89 - 93 FAUNISTIK

Occurrence of the grasshopper *Stenobothrus eurasius bohemicus* (Caelifera: Acrididae) in the Czech Republic

Jaroslav Holuša & Otakar Holuša

Introduction

Stenobothrus eurasius is a chortobiont, central-european-west-asian species (RÁCZ 1998) of the steppe zone of the Euro-Siberian Subregion. MAŘAN (1958) found this grasshopper in the Milešovské středohoří hills and the Házmburská table hills in northern Bohemia in the following localities: hill of Raná, hill of Oblík, hill of Milý, hill of Hazenburk and hill of Dlouhý vrch. Dlouhý vrch (i.e. long hill) is a popular name of the hills Srdov and Brník together. Even the hill of Srdov is named "Langer Berge" in an old military map (MALENÍNSKÁ 1984). ČEJCHAN (1980) mistook Dlouhý vrch for hill of Dlouhá hora (i.e. long mountain) which lies nearby.

MAŘAN (1954) described a new subspecies (ssp. *bohemicus* Mařan) based on specimens from these localities. Several years later one male was found on a hill at the village of Hořenec (MAŘAN 1964). According to ČEJCHAN (1958) this hill is identical with the protected area of Čičov.

Twenty years later ČEJCHAN (1980) confirmed this subspecies in the localities Oblík, Milá and Raná and found a new one on the hill of Radobýl. Later the same author found this grasshopper in the locality of Hazmburk, because the caption of the the photo of this locality, it i mentioned as a habitat for several species including *Stenobothrus eurasius bohemicus* (ČEJCHAN 1982).

HONCŮ (1993), who has studied the localities Radobýl, Oblík, Srdov, Milá, Hazmburk and Čičov in the period of 1988-1990, did not confirm the occurrence of this grasshopper in these localities.

Stenobothrus eurasius is proposed to be included on ANNEX II of the Council Directive 92/43/ EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Therefore it was necessary to check the present occurrence. We have surveyed all known localities and many other places with steppe habitats in the surroundings in the period of 23.-29. July 2001.

Abbreviations

NPP (národní přírodní památka) - national nature monument
NPR (národní přírodní rezervace) - national nature reserve
PP (přírodní památka) - nature monument
PR (přírodní rezervace) - nature reserve

The name of taxons are used according to KOČÁREK et al. (1999). All material J. Holuša leg., det. et coll.

Results and discussion

We have confirmed the occurrence of *Stenobothrus eurasius* in all known localities, except the protected area of Čičov (Tab. 1). One male caught there by MAŘAN (1964) has probably flew up from the near-by places. The habitat in Čičov is really different to the other localities.

Tab. 1: Survey of known localities of *Stenobothrus eurasius bohemicus* in the Czech Republic

Village	Locality	faunistic field	MAŘAN (1958, 1964)	ČEJCHAN (1980, 1982)	recent study
Hořenec	PR Čičov	5548	orig. hill at village of Hořenec		
Klapý	hill of Hazmburk 418.2 m a.s.l.	5549	orig. Hazenburk	X	2/3
Milá	PR Milá	5548	orig. Milý	X	3/6
Mnichov u Loun	hill of Srdov 481.6 m a.s.l.	5548	orig. hill of Dlouhý vrch		0/2
Mnichov u Loun	hill of Brník 471 m a.s.l.	5548	orig. hill of Dlouhý vrch		0/1
Mnichov u Loun	NPR Oblík	5548	x	X	5/3
Raná u Loun	NPR Raná	5548	x	X	2/2
Žalhostice	PP Radobýl	5450		X	3/6

Other tested localities, where *Stenobothrus eurasius bohemicus* has not been observed:
Bečov u Mostu (PR Písečný vrch); Děkovka (hill of Hrádek 565 m a.sl., hill of Plešivec 477.2 m a.s.l.); Hnojnice (NPP Kamenná slunce); Charvátce (hill of Malý vrch 374.9 m a.s.l., hill of Křížové vršky 366 m a.s.l., hill of Šibeník 344 m a.s.l.); Jenčice (PP Košťálov); Kozly (hill of Dlouhá hora 482.9 m a.s.l.); Kozly u Loun (PP Tobiášův vrch); Liběšice u Želenic (NPR Bořeň); Oparno (NPR Lovoš); Pokratice (NPP Bílé stráně); Sutom (hill of Holý vrch 485 m a.s.l.); Stroupeč (PP Stroupeč); Třtěno (hill of Syslík 285 m a.s.l.); Velké Žernoseky (PR Kalvárie, hill of Strážiště 362.3 m a.s.l.); Vlastislav (place of Skalka); Všechlapy (hill of Kamýk 436.7 m a.s.l.).

Stenobothrus eurasius bohemicus inhabits unscalable rocks, featuring sandy spots without vegetation. The surrounding vegetation belongs to the association Festucion valesicae Klika 1931. The microclimate of steep rocky slope with south exposition is very warm, even during winter snow level remains there only few days (MORAVEC pers. comm.).
Only *Platycleis albopunctata* and sometimes *Oedipoda caerulescens* occurred in these habitats, too. In the locality of Radobýl, *Stenobothrus eurasius* lives in grassy terrace of former stone pit along with *C. apricarius*, *C. biguttulus*, *O. haemorrhoidalis*, *Euchorthippus pulvinatus*, *Metrioptera bicolor*, *Stenobothrus*

lineatus, *St. nigromaculatus* and *St. crassipes*. The abundance of *Stenobothrus eurasius* was low here. On the other hand in rocky steppes, the density were very high in all localities. This is probably a result of moisture weather during spring, that caused the high nutrient quality and consequently high survival of nymphs. Even during the study in the mid of July the habitat appeared to be as in June (MORAVEC pers. comm.).

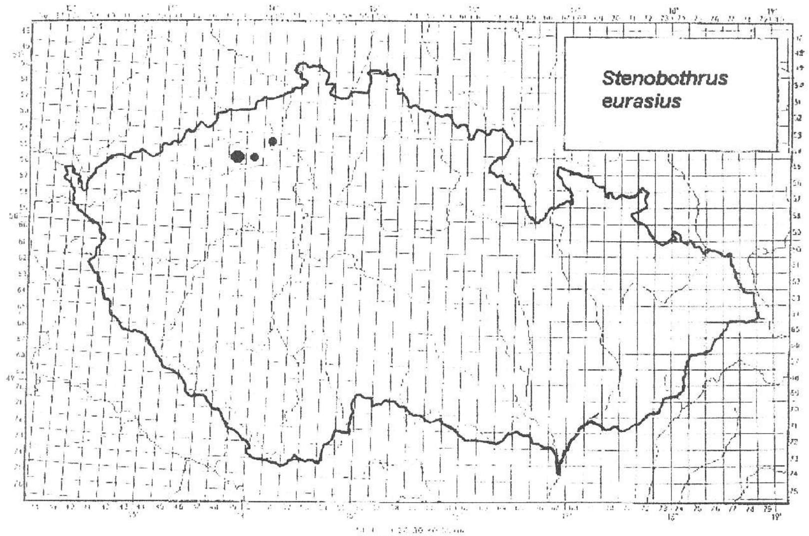


Fig. 1: Occurrence of the *Stenobothrus eurasius bohemicus* in the Czech Republic (point - one locality, full circle - five localities)

Stenobothrus eurasius has immigrated from the Angarian refuge into the north-western part of the Bohemia from south-east during the warm period of post-glacial epoch, probably in Boreal (MAŘAN 1964, RÁCZ 1998). The survival of this grasshopper in the most moisture epochs is a result of later stone age agriculture, which has stopped expansion of woodlands in the south-west part of the Bohemian Middle Mountains as well as in southern foothills, which grade into chernozem area of the Ohře Valley (LOŽEK 2000).
In other parts of Central Europe the distribution of this species is as polydisjunctive as in Bohemia. In Slovakia, there are only several localities known, concentrated mainly in the southern slopes with mountain steppe of Slovenský kras karst (HOLUŠA 1996), where it creates ssp. *slovacus* (MAŘAN 1958). Similar situation is in Hungaria, where relative abundance is very low (Aggtelek Karst), too (RÁCZ 1998). In Austria, *Stenobothrus eurasius* lives only in Lower Austria and Burgenland (WAITZBAUER & ORTEL 1998).

At present, the rocky steppe stand in danger of overgrowing with herbage and grass as well as trees. Regular cutting of trees and sheep grazing are necessary

key tools of management. Probably goat grazing is the most suitable method mainly in unscalable rocks. Now one flock of sheeps and goats (cca 100 ex) graze alternatelly in the localities of Oblík, Raná and Milá. Trees are as necessary cut once a few years.

The majority of localities are protected. The localities of Srdov and Brník will be included into a planned enlargement of the protected area Oblík. Only locality of Hazmburk is now unprotected.

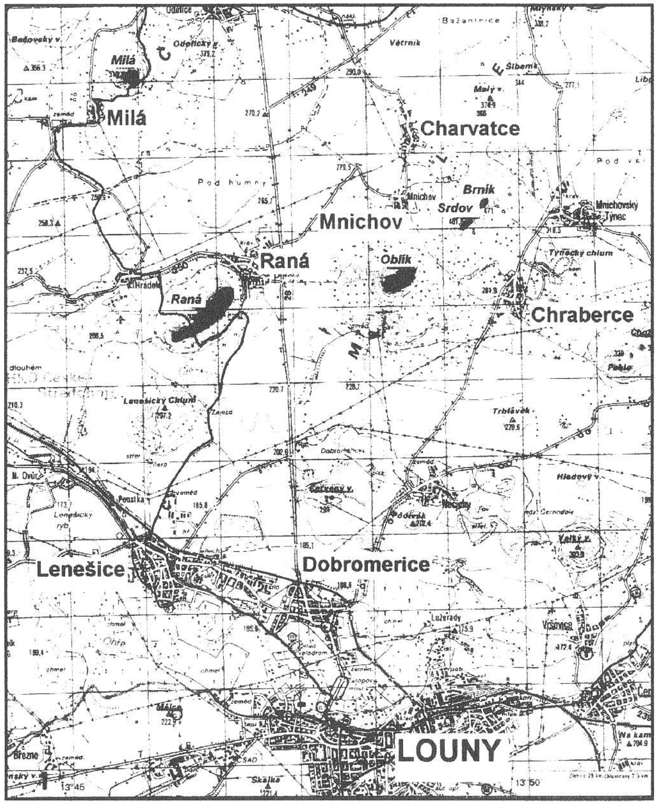


Fig. 2: Localities of *Stenobothrus eurasius bohemicus* in the south-western part of the Milešovské středohoří hills (faunistic field 5548) (hiking map (COLLECTIVE 1993))

Authors:

Ing. Jaroslav Holuša, Ph.D.
Hasičská 3040
73801 Frýdek-Místek
Czech Republic
e-mail: holusaj@seznam.cz

Ing. Otakar Holuša
Bruzovská 325
73801 Frýdek-Místek
Czech Republic
e-mail: holusao@seznam.cz

References

COLLECTIVE (1993): České středohoří - západ. Soubor turistických map 1:5000. - Klub českých turistů, Praha, 1 map. ČEJCHAN, A. (1980): K poznání orthopteroidního hmyzu (s. l.) ČSSR I. – Čas. Nár. Muz. Praha, Řada přírodověd. 149: 125–139.

ČEJCHAN, A. (1982): K poznání orthopteroidního hmyzu (s. l.) ČSSR III. – Čas. Nár. Muz. Praha, Řada přírodověd. 151: 1–13.

HOLUŠA, J. (1996): A contribution to the knowledge of the distribution of grasshoppers and crickets throughout Slovakia. - Entomofauna carpathica 8: 115-124.

HONCŮ, M. (1993): Příspěvek k poznání orthopteroidního hmyzu severozápadních Čech. – Sbor. Okres. Muz. Most, Řada. přírodověd. 13–14 (1992): 89–108.

KOČÁREK, P., HOLUŠA, J. & VIDLIČKA Ľ. (1999): Check-list of Blattaria, Mantodea, Orthoptera and Dermaptera of the Czech and Slovak Republics. – Articulata 14(2): 177–184.

LOŽEK, V. (2000): Protected Areas in the Light of their Landscape History. - Problems of the lanscape development in the Bohemian Middle Mts. - Ochrana přírody 55: 18-24.

MALENÍNSKÁ, J. (1984): Oronyma Českého středohoří. (Bergnamen des Böhmischen Mittelgebirges). Severočeskou přírodou 1984/1 (příloha): 1-73.

MAŘAN, J. (1958): O výskytu Stenobothrus (subg. Stenobothrodes Tarb.) eurasius Zub. v Československu. Über das Vorkommen Stenobothrus (subg. Stenobothrodes Tarb.) eurasius Zub. in der Tschechoslowakei. Orthoptera - Acrididae. - Acta Ent. Mus. Nat. Pragae 32: 537-543 (partly in Czech and German).

MAŘAN, J. (1964): Výsledky orthopterologického výzkumu v Lounském středohoří. - S. 165-178. In: Referáty entomologického sympozia (22.-24. září 1964) u příležitosti oslav 150let trvání Slezského muzea v Opavě. Zetaprinton mtz., Opava. RÁCZ, I. A. (1998): Biogeographical survey of the Orthoptera Fauna in Central part of the Carpathian Basin (Hungary): Fauna types and community types. - Articulata 13(1): 53-69.

WAITZBAUER, W. & ORTEL, J. (1998): The "Hundsheimer Berge" in Lower Autria, centre of an extraordinary arthropod fauna. In: BRUNNHOFER, V. & SOLDÁN, T. (eds.): Book of Abstracts, VIth Eur. Congr. Entomol., České Budějovice, August 23-29, pp. 367-368.